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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/666,836 | 09/21/2000 | Norman G. Anderson | 2316-141 | 1512 |

6449 7590 02/12/2003

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| EXAMINER | |
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| LU, FRANK WEI MIN | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1634 | |

DATE MAILED: 02/12/2003

23

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/666,836 | ANDERSON ET AL. | |
| | Examiner | Art Unit | |
| | Frank W Lu | 1634 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *83,84, and 92-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *83, 84, and 92-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

## DETAILED ACTION

### *Election/Restriction*

1. Applicant's election with traverse of in Paper No. 21 is acknowledged. The traversal is on the ground(s) that "[S]ince all of the claims were previously considered and discussed, it is submitted that it is inappropriate to restrict the six pending claims into two groups." .

After carefully applicant's argument and reviewing claims 83, 84, and 92-95, the examiner agreed to withdraw the restriction requirement. Therefore, claims 83, 84, and 92-95 will be examined.

### *Claim Objections*

2. Claims 93 and 95 are objected to because of the following informalities: the phrase "treating said nucleic acid" should be "treating said immobilized nucleic acid"

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 93-95 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Although the specification describes an ultracentrifuge tube comprising an upper region, a middle region, and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said middle region and wherein an inner diameter of said middle region is larger than or same as an inner diameter of said lower region (for example, see Figures 2A to 2C), the specification does not adequately describe that an ultracentrifuge tube comprising an upper region, a middle region, and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said middle region and wherein an inner diameter of said middle region is larger than an inner diameter of said lower region and **wherein the inner walls of said centrifuge tube are parallel to each other in each region** as recited in claims 93-95. MPEP 2163.06 states that "If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981)." In view of the embodiments adequately description in the specification, the subject application does not reasonably convey to one skilled in the art that applicant was in possession of the full scopes of products encompass in the claims at the time of the application was filled. Therefore, the written description requirement has not been satisfied.

In support of this position, attention is directed to the decision of *Vas-Cath inc. V. Mahurkar* 19 USPQ2d 1111 (CAFC, 1991):

This court in *Wilder* (and the CCPA before it) clearly recognized, and we hereby reaffirm, that 35 U.S.C. 112, first paragraph, requires a "written description of the invention" which is separate and distinct from the enablement requirement. The purpose of the "written description"

requirement is broader than to merely explain how to "make and use"; the "applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention.* The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 84 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 84 is rejected as vague and indefinite in view of (a) of the claim because there is insufficient antecedent basis for step (a) of the claim. The phrase "according to the method of claim 83" in step (a) of the claim is confusing since, although the step (d) of claim 83 can be used to determine a restriction map of an extracted genomic DNA, the method in claim 83 is not directed to determine a restriction map of extracted genomic DNA. Please clarify. The examiner suggests to replace "according to" with "using" in order to overcome this rejection.

## *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher *et al.,* (Lett. Appl. Microbiol. 8, 151-156, 1989) in view of Sambrook *et al.,* (Molecular Cloning, A Laboratory Manual, Second Edition, pages 1.25-1.30, 1989).

Pitcher *et al.,* teach rapid extraction of bacteria genomic DNA with guanidium thiocyanate. In this study, bacteria in broth culture at the end of the exponential growth phase (~4.8 $\times 10^8$ cells/ml) were pelleted by centrifugation. A small bacteria pellet (rice grain-sized) after centrifugation was obtained (see right column in page 151) and this suggested that a small volume of bacteria was used for the centrifugation. The pellet was resuspended in 100 μl of buffer, lysed with 0.5 ml of 5 M guanidium thiocyanate, 100 mM EDTA and 0.5% sarkosyl and then extracted with chloroform/2-pentanol in 1.5 ml Eppendorf tube as step (b) of the claim. The purified genomic DNA was digested with different restriction enzymes as recited in step (c) of the claim and run in 0.8% agarose gel in order to observe the digested patterns of genomic DNA (see right column in page 151, left column in page 152, and Figure 2 in page 154). Figure 3 showed that the number and the length of fragments of digested genomic DNA as recited in step (d) of the claim.

Pitcher *et al.*, do not disclose to add a microorganism (ie., a bacteria) into an ultracentrifuge tube comprising an upper region, a middle region, and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said middle region and wherein an inner diameter of said middle region is larger than an inner diameter of said lower region as recited in step (a) of claim 83.

Sambrook *et al.*, teach small-scale preparation of plasmid DNA. 1.5 ml of bacteria culture was harvested in a microfuge tube by centrifugation and then plasmid DNA was isolated by either alkali lysis method or lysis by boiling method (see pages 1.25-1.30, specifically see pages 1.25 and 1.28). The microfuge tube was considered as an ultracentrifuge tube comprising an upper region, a middle region and a low region wherein an inner diameter of said upper region was larger than an inner diameter of said middle region and wherein an inner diameter of said middle region was larger than an inner diameter of said low region as recited in step (a) of claim 83 (for the size and shape of the microfuge tube, see Figures 1.2 and 1.3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have centrifuged a sample containing a microorganism in a microfuge tube comprising an upper region, a middle region and a low region wherein an inner diameter of said upper region was larger than an inner diameter of said middle region and wherein an inner diameter of said middle region was larger than an inner diameter of said low region in view of references of Pitcher *et al.*, and Sambrook *et al.*. One having ordinary skill in the art has been motivated to modify the method of Pitcher *et al.*, because centrifugation of a sample containing a small volume (ie. Less than 2 ml) of microorganism in a microfuge tube would be routine

practice to one having ordinary skill in the art in order to concentrate a sample containing a microorganism since 1.5-2 ml microfuge tube was a common centrifuge tube used in biological laboratories. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to centrifuge a small volume of microorganism (ie., bacteria) sample in order to obtain a small bacteria pellet (rice grain-sized) taught by Pitcher *et al.,* (see right column in page 151).

9. Claims 83 and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samadpour *et al.,* (J. Clin. Microbiology, 31, 3179-3183, 1993) in view of Sambrook *et al.,* (1989).

Samadpour *et al.,* teach molecular epidemiology of *Escherichia coli* 0157: H7 strains by bacteriophage lambda restriction fragment length polymorphism analysis. In this study, confluent bacterial cells in agar plates were scraped with several sweeps of a sterile flat-headed toothpick and were suspended in 0.8 ml of Tris buffer before DNA extraction. Genomic DNAs prepared from 168 isolates of *Escherichia coli* O157:H7 were digested with four different restriction enzymes (EcoRI, HindIII, PstI, and PvuII) as recited in step (b) of claim 83, separated in 0.8% agarose gel (see page 3180, left column), and analyzed for restriction fragment length polymorphisms on Southern blots probed with bacteriophage lambda DNA (see Figures 1 and 2) wherein the hybridization patterns in Figures 1 and 2 showed number and length of digested genomic DNA fragments from *E. coli* O157:H7 and these fragments were considered to be organized a restriction map as recited in step (a) of claim 84. E. coli O157:H7 isolates recovered

from the incriminated meat (considered as known microorganisms) and from 61 of 63 patients (considered as microorganisms from biological samples) from Washington and Nevada possessed identical lambda restriction fragment length patterns (see abstract in page 3179 and left column in page 3182) and this suggested that *E. coli* O157:H7 found in 61 of 63 patients was identical to the strain found in the incriminated meat as recited in claim 84.

Samadpour *et al.*, do not disclose to add a microorganism (ie., a bacteria) into an ultracentrifuge tube comprising an upper region, a middle region, and a lower region wherein an inner diameter of said upper region is larger than an inner diameter of said middle region and wherein an inner diameter of said middle region is larger than an inner diameter of said lower region as recited in step (a) of claim 83.

Sambrook *et al.*, teach small-scale preparation of plasmid DNA. 1.5 ml of bacteria culture was harvested in a microfuge tube by centrifugation and then plasmid DNA was isolated by either alkali lysis method or lysis by boiling method (see pages 1.25-1.30, specifically see pages 1.25 and 1.28). The microfuge tube was considered as an ultracentrifuge tube comprising an upper region, a middle region and a low region wherein an inner diameter of said upper region was larger than an inner diameter of said middle region and wherein an inner diameter of said middle region was larger than an inner diameter of said low region as recited in step (a) of claim 83 (for the size and shape of the microfuge tube, see Figures 1.2 and 1.3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have centrifuged a sample containing a microorganism in a microfuge tube comprising an upper region, a middle region and a low region wherein an inner diameter of

said upper region was larger than an inner diameter of said middle region and wherein an inner diameter of said middle region was larger than an inner diameter of said low region in view of references of Samadpour *et al.*, and Sambrook *et al.*. One having ordinary skill in the art has been motivated to modify the method of Samadpour *et al.*, because: (1) centrifugation of a sample containing a small volume (ie., 0.8 ml taught by Samadpour *et al.*, see page 3180, left column) of microorganism in a microfuge tube would be routine practice to one having ordinary skill in the art since 1.5-2 ml microfuge tube was a common centrifuge tube used in biological laboratories and centrifugation of a microorganism would provide a good way to concentrate a microorganism so that volume of a suspended microorganism would be kept as small as possible and would make followed extraction step (ie., steps (b) of claim 83) to be perform much easily; (2) the simple substitution of one DNA extraction method (ie., the method from Samadpour *et al.*, without pelleting bacteria using centrifugation) from another DNA extraction method (ie., the method from Sambrook *et al.*, with pelleting bacteria using centrifugation) during the process of determining the identity of a bacteria in a biological sample would have been, in the absence of an unexpected result, *prima facie* obvious to one having ordinary skill in the art at the time the invention was made since the replacement of one DNA extraction method from another DNA extraction method would not change the experimental results.

Furthermore, the motivation to make the substitution cited above arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making the obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

Also note that there is no invention involved in combining old elements is such a manner that these elements perform in combination the same function as set forth in the prior art without giving unobvious or unexpected results. *In re Rose* 220 F.2d. 459, 105 USPQ 237 (CCPA 1955).

10. Claim 92 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pitcher *et al.*, in view of Sambrook *et al.*,as applied to claim 83 above, and further in view Lanoil *et al.*, (Appl. Environ. Microbiol. 63, 1118-1123, March 1997) and Burgoune (US Patent No. 5,756,126, filed on June 7, 1995).

The teaching of Pitcher *et al.*, and Sambrook *et al.*,have been summarized previously, *supra.* Note that, since steps (a) and (b) of claims 83 and 92 are identical, Pitcher *et al.*, in view of Sambrook *et al.*, was considered to teach steps (a) and (b) of claim 92. Pitcher *et al.*, also teach step (e) and (f) of claim 92 except an immobilized nucleic acid was used in restriction digestion.

Pitcher *et al.*, and Sambrook *et al.*,do not disclose staining extracted bacteria genomic DNA and immobilizing the DNA on a solid support as recited in steps (c) and (d) of claim 92.

Lanoil *et al.*, do teach to label bacteria genomic DNA with fluorescence as recited in step (c) of claim 92 (see abstract in page 1118 and right column in page 1119).

Burgoune do teach to immobilize genomic DNA from bacteria on a solid support, digest immobilized genomic DNA with a restriction enzyme, and run digested DNA by gel electrophoresis as recited in step (d) and (e) of claim 92 (see columns 5, 20 and 21, and Figure 3).

Therefore, in the absence of an unexpected result, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have immobilized

fluorescence labeled bacteria genomic DNA on a solid support, digested immobilized genomic DNA with one or more restriction enzyme, and run digested DNA by gel electrophoresis in view of the prior art of Pitcher *et al.*, Sambrook *et al.*, Lanoil *et al.,* and Burgoune. One having ordinary skill in the art at the time the invention was made has been motivated to modify the method recited in claim 83 because the simple substitution of one kind of genomic DNA (ie., unlabeled DNA in the reference of Lanoil *et al.,*) from another kind of genomic DNA (ie., fluorescence labeled DNA in the reference of Pitcher *et al.,*) for immobilization, and the simple substitution of one DNA digestion method (ie., digestion DNA in a solution in the reference of Pitcher *et al.,*) from another DNA digestion method (ie., digestion DNA on a solid support in Burgoune's patent) during the process of determining a restriction enzyme map of a bacteria would have been, in the absence of an unexpected result, *prima facie* obvious to one having ordinary skill in the art at the time the invention was made since these replacements would not change the experimental results.

Furthermore, the motivation to make the substitution cited above arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making the obviousness rejection comes from the M.P.E.P. at 2144.07 and 2144.09.

Also note that there is no invention involved in combining old elements is such a manner that these elements perform in combination the same function as set forth in the prior art without giving unobvious or unexpected results. *In re Rose* 220 F.2d. 459, 105 USPQ 237 (CCPA 1955).

***Response to Arguments***

In pages 7-9 of applicant's remarks, applicant argued that " [A]n Efferndorf tube is not an ultracentrifuge tube" since "[A]ppendix A, for example, describes an Effendorf tube as limited to G forces of 25,000 or below. There are much lower than those which an ultracentrifuge tube is able to tolerate.".

This argument has been fully considered but it is not persuasive toward the withdrawal of the rejection. The examiner agrees with applicant that the maximum G force which Effendorf tube (a common microfuge tube used in biological laboratories) can tolerate is only 25,000. However, since the specification does not define what kind of centrifuge tube is considered as an ultracentrifuge tube and the claims do not limit range of centrifugation speed or G-force, it is reasonably consider an Effendorf tube as an ultracentrifuge tube.

***Conclusion***

11. No claim is allowed.

12. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is either (703) 308-4242 or (703)305-3014.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Lu, Ph.D., whose telephone number is (703) 305-1270. The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703) 308-1152.

Any inquiry of a general nature or relating to the status of this application should be directed to the Chemical Matrix receptionist whose telephone number is (703) 308-0196.

Frank Lu
February 7, 2002

Ethan Whisenant, Ph. D.
Primary Examiner (FSA)